Sam Laing

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Personal Statement

Machine Learning Engineer with experience building and deploying ML models in production fintech systems. Skilled in model optimization, scalable data pipelines, analytics and MLOps, with a track record of delivering meaurable impact through data-driven ML systems. Passionate about deep learning, large-scale ML infrastructure and building production-grade AI systems. Hold an MSc. in Computer Science and a Bachelor's in mathematics. Seeking a position as Machine Learning Engineer/Data Scientist to leverage my expertise to building impactful data-driven projects.

Professional Skills

Programming Languages: Python, C++, SQL, R

ML Tools: PyTorch, JAX, WandB, Torch Lightning, Numpy, Pandas, Scikit-learn, Optuna,

Infrastructure: Azure, SLURM, FastAPI, Git, GitLab

Experience

ELLIS Institute/Max Planck Institute Tübingen, Germany

Research Engineer *Sep 2025 – Present*

- Researching methods to enhance the pre-training of GPT-style language models, targeting both improvements in training efficiency and the foundational understanding of the optimization process.
- Particularly interested in understanding the Muon optimizer and its contemporaries in contrast to more popular adaptive methods

SoftCo Dublin, Ireland

Machine Learning Engineer *May 2023 – April 2025, Part-time*

- Developed and deployed a Bayesian invoice-matching module, enabling 95%+ touchless processing and automating a significant portion of AP services. This solution enhanced sales by demonstrating high auto-match rates during customer onboarding, leading to increased customer acquisition and significant cost savings for clients.
- Developed and deployed a Random Forrest model as part of a product automating invoice coding to eliminate manual effort for customers. The project involved multi-label classification task with a large number of classes.
- Implemented data parsers and contributed to an Azure-based ETL pipeline to support model training workflows.
- Produced comprehensive documentation to ensure clarity and reproducibility working within Agile framework

University Of Tübingen Tübingen, Germany

Student Researcher *May 2024 - September 2024*

- Researched the effectiveness of soft label datasets in improving the calibration of deep neural networks, comparing their utility against regularization techniques such as MixUp, Manifold MixUp, CutMix, and Dropout in distance-aware networks like SNGP, DUQ, and Mahalanobis Distance. (Github Repository)

Education

University of Tuebingen Germany

MSc. in Machine Learning; ***Grade 1.3 (sehr gut)*** *Oct 2022 – July 2025*

Master's Thesis: Researched adaptive and second-order optimizers (in particular, Muon) for transformer-based language models. In particular, was interested in pretraining efficiency and understanding training dynamics. Supervised by Dr. Antonio Orvieto

Trinity College Dublin Ireland

BA Mathematics; ***First Class Honors*** *Sep 2018 – Jun 2022*

Bachelor Thesis: Applied category theoretical techniques (in particular simplicial homotopy theory) to prove several fundamental theorems of algebraic topology. Supervised by Dr Jack Kelly

Awards & Achievements

Trinity College Academic Gold Medal: Awarded for academic excellence throughout 4 years of study

William Hasslett Memorial Prize: Awarded to the St Andrew's College student with the best high school grades and attending Trinity College (in the Leaving Certificate Examinations) (2017)

References

Susan Spence, Co-founder SoftCo & Manverton (email)

Neil Kelly, Product Manager SoftCo (email)